What is claimed is:

1. A hydratable copolymer comprising:

a) a first monomeric component which comprises an aryl acrylate or an aryl methacrylate;

b) a second monomeric component which comprises a monomer having an aromatic ring with a substituent having at least one site of ethylenic unsaturation, wherein the second monomeric component is other than an acrylate; and

c) a third monomeric component which comprises a high water content hydrogel-forming monomer.

2. The copolymer of claim 1 wherein the copolymer becomes flexible when hydrated, and wherein the hydrated copolymer expands less than about 10 volume percent compared to the unhydrated copolymer.

3. The copolymer of claim 1 wherein the copolymer becomes flexible when hydrated, and wherein the hydrated copolymer has an equilibrium water concentration less than about 5 weight percent.

4. The copolymer of claim 1 wherein the copolymer is rigid at normal room temperature when dry, and flexible at normal room temperature when hydrated.

5. The copolymer of claim 2 wherein the hydrated copolymer has a refractive index greater than about 1.50.

6. The copolymer of claim 2 wherein the unhydrated copolymer is machinable at normal room temperature.

7. The copolymer of claim 1 wherein the copolymer is for use in an ophthalmic device.

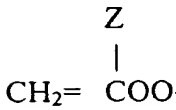
8. The copolymer of claim 7 wherein the ophthalmic device is an intraocular lens.

9. The copolymer of claim 1 wherein the copolymer further comprises a crosslinking agent.

10. The copolymer of claim 1 wherein the copolymer has a glass transition temperature greater than about room temperature.

11. The copolymer of claim 1 wherein the copolymer is machinable at normal room temperature and has a refractive index greater than about 1.50.

12. The copolymer of claim 1 wherein the first monomeric component corresponds to the formula:



wherein:

Z is - H or -CH_3, and

Q is a substituent containing at least one aromatic ring.

13. The copolymer of claim 12 wherein Q is selected from the group consisting of: ethylene glycol phenyl ether, poly(ethylene glycol phenyl ether acrylate), phenyl, 2-ethylphenoxy, 2-ethylphenoxy, hexylphenoxy, hexylphenoxy, benzyl, 2-phenylethyl, 4-methylphenyl, 4-methylbenzyl, 2-2-methyphenylethyl, 2-3-methylphenylethyl methacrylate, 2-4-methylphenylethyl, 2-(4-propylphenyl)ethyl, 2-(4-(1-methylethyl)pheny)ethyl, 2-(4-methoxyphenyl)ethyl, 2-(4-cyclohexylpheny)ethyl, 2-(2-chlorophenyl)ethyl, 2-(3-chlorophenyl)ethyl, 2-(4-chlorophenyl)ethyl, 2-(4-bromophenyl)ethyl, 2-(3-phenylphenyl)ethyl, 2-(4-phenylphenyl)ethyl), and 2-(4-benzylphenyl)ethyl.

14. The copolymer of claim 1 wherein the first monomeric component is selected from the group consisting of ethylene glycol phenyl ether acrylate, poly(ethylene glycol phenyl ether acrylate), phenyl methacrylate, 2-ethylphenoxy methacrylate, 2-ethylphenoxy acrylate, hexylphenoxy methacrylate, hexylphenoxy acrylate, benzyl methacrylate, 2-phenylethyl methacrylate, 4-methylphenyl methacrylate, 4-methylbenzyl methacrylate, 2-2-methyphenylethyl methacrylate, 2-3-methylphenylethyl methacrylate, 2-4-

methylphenylethyl methacrylate, 2-(4-propylphenyl)ethyl methacrylate, 2-(4-(1-methylethyl)pheny)ethyl methacrylate, 2-(4-methoxyphenyl)ethylmethacrylate, 2-(4-cyclohexylpheny)ethyl methacrylate, 2-(2-chlorophenyl)ethyl methacrylate, 2-(3-chlorophenyl)ethyl methacrylate, 2-(4-chlorophenyl)ethyl methacrylate, 2-(4-bromophenyl)ethyl methacrylate, 2-(3-phenylphenyl)ethyl methacrylate, 2-(4-phenylphenyl)ethyl methacrylate), 2-(4-benzylphenyl)ethyl methacrylate, and mixtures thereof.

15. The copolymer of claim 1 wherein the first monomeric component is selected from the group consisting of ethylene glycol phenyl ether acrylate and poly ethylene glycol phenyl ether acrylate.

16. The copolymer of claim 1 wherein the copolymer includes at least about 10 weight percent of the first monomeric component.

17. The copolymer of claim 1 wherein the second monomeric component includes substituted styrene or unsubstituted styrene.

18. The copolymer of claim 1 wherein the second monomeric component is selected from the group consisting of styrene and styrene substituted with at least one halogen, lower alkyl or lower alkoxy substituent.

19. The copolymer of claim 1 wherein the second monomeric component is selected from the group consisting of styrene and chloro styrene.

20. The copolymer of claim 1 wherein the copolymer includes at least about 10 weight percent of the second monomeric component.

21. The copolymer of claim 1 wherein the third monomeric component includes a methacrylate without an aromatic substituent.

22. The copolymer of claim 1 wherein the third monomeric component is selected from the group consisting of: hydroxyethyl methacrylate, hydroxyethoxyethyl methacrylate, hydroxydiethoxyethyl methacrylate, methoxyethyl methacrylate,

methoxyethoxyethyl methacrylate, methoxydiethoxyethyl methacrylate, ethylene glycol dimethacrylate, n-vinyl-2-pyrrolidone, methacrylic acid, vinyl acetate, and mixtures thereof.

23. The copolymer of claim 1 wherein the third monomeric component is selected from the group consisting of hydroxyethyl methacrylate, hydroxy ethoxyethyl methacrylate, and methacrylic acid.

24. The copolymer of claim 1 wherein the copolymer includes at least about 10 weight percent of the third monomeric component.

25. The copolymer of claim 9 wherein the crosslinking agent comprises a diacrylate or a dimethacrylate.

26. A hydratable copolymer comprising:

a) at least about 20 weight percent of a first monomeric component selected from the group consisting of ethylene glycol phenyl ether acrylate, and polyethylene glycol phenyl ether acrylate;

b) at least about 10 weight percent of a second monomeric component selected from the group consisting of substituted styrene and unsubstituted styrene;

c) at least about 10 weight percent of a third monomeric component selected from the group consisting of hydroxy ethyl methacrylate, hydroxyethoxy ethyl methacrylate, and methacrylic acid; and

d) less than about 10 weight percent of a crosslinking agent selected from the group consisting of a diacrylate and a dimethacrylate,

wherein the copolymer has a refractive index greater than about 1.50, and is foldable at normal room temperature when hydrated.

27. The copolymer of claim 26 wherein the crosslinking agent comprises ethylene glycol dimethacrylate.

28. The copolymer of claim 26 wherein the first monomeric component comprises polyethylene glycol phenyl ether acrylate, the second monomeric component comprises

styrene, the third monomeric component comprises hydroxy ethyl methacrylate, and the crosslinking agent comprises an ethylene glycol dimethacrylate.

29. The copolymer of claim 26 wherein the copolymer comprises:

a) less than about 50 weight percent of the first monomeric component;

b) less than about 40 weight percent of the second monomeric component;

c) less than about 60 weight percent of the third monomeric component; and

d) at least about 1 weight percent of the crosslinking agent.

30. The copolymer of claim 26 wherein the copolymer comprises:

a) from about 30 to about 45 weight percent ethylene glycol phenyl ether acrylate, polyethylene glycol phenyl ether acrylate, or mixtures thereof;

b) from about 20 to about 30 weight percent styrene;

c) from about 25 to about 40 weight percent hydroxy ethyl methacrylate, hydroxy ethyl methacrylate, or mixtures thereof; and

d) from about 1 to about 5 weight percent of the crosslinking agent.

31. An ophthalmic device comprising a hydratable copolymer, the copolymer comprising:

a) at least about 20 weight percent of a first monomeric component selected from the group consisting of ethylene glycol phenyl ether acrylate, and polyethylene glycol phenyl ether acrylate;

b) at least about 10 weight percent of a second monomeric component selected from the group consisting of substituted styrene and unsubstituted styrene;

c) at least about 10 weight percent of a third monomeric component selected from the group consisting of hydroxy ethyl methacrylate, hydroxyethoxy ethyl methacrylate, and methacrylic acid; and

d) less than about 10 weight percent of a crosslinking agent selected from the group consisting of a diacrylate and a dimethacrylate,

wherein the copolymer has a refractive index greater than about 1.50 and is foldable at normal room temperature when hydrated.

32. The ophthalmic device of claim 31 wherein the ophthalmic device is an intraocular lens.

33. A method of manufacturing an intraocular lens, the method comprising:

a) providing a rigid, hydratable copolymer comprising
a first monomeric component which comprises an aryl acrylate or an aryl methacrylate;
a second monomeric component which comprises a monomer having an aromatic ring with a substituent having at least one site of ethylenic unsaturation, wherein the second monomeric component is other than an acrylate; and
a third monomeric component which comprises a high water content hydrogel-forming monomer,
wherein the copolymer has a glass transition temperature greater than about normal room temperature;

b) forming a rigid intraocular lens having the desired dimensions from the rigid copolymer; and

c) hydrating the copolymer to form a foldable, hydrated intraocular lens,

wherein the hydrated intraocular lens has an equilibrium water concentration less than about 10 weight percent, and a refractive index greater than about 1.55.

34. The method of claim 33 wherein the rigid intraocular lens and the foldable hydrated intraocular lens differ in volume by less than about 10%.

35. The method of claim 33 wherein the intraocular lens is a 20 diopter lens and has a central thickness less than about 0.4 mm.

36. The method of claim 33 wherein the copolymer is hydrated by:
placing the copolymer in an aqueous solution;
gradually increasing the temperature of the aqueous solution to about 40°C;
holding the temperature of the aqueous solution at about 40°C for at least about 10 minutes;
gradually increasing the temperature of the aqueous solution to about 60°C;

holding the temperature of the aqueous solution at about 60°C for at least about one hour; and gradually decreasing the temperature of the aqueous solution to about room temperature.

37. The method of claim 38 wherein the rigid intraocular lens is formed by cutting a lens from a rigid sheet of the copolymer, and polishing the lens.

38. A method of implanting an ophthalmic device within an eye, the method comprising:

providing a hydratable ophthalmic device which is rigid at room temperature when dry and foldable at room temperature when hydrated, the hydratable ophthalmic device being hydrated;

providing a syringe containing the hydrated ophthalmic device; and

injecting the ophthalmic device into the eye.

39. The method of claim 38 wherein the ophthalmic device is an intraocular lens

40. The method of claim 38 wherein the hydratable ophthalmic device comprises a copolymer including:

a) a first monomeric component which comprises an aryl acrylate or an aryl methacrylate;

b) a second monomeric component which comprises a monomer having an aromatic ring with a substituent having at least one site of ethylenic unsaturation, wherein the second monomeric component is other than an acrylate; and

c) a third monomeric component which comprises a high water content hydrogel-forming monomer.

41. The method of claim 38 wherein the ophthalmic device is injected into the eye through an incision less than about 1 millimeter in length.

42. A copolymer formed by the process comprising:

a) mixing a first monomeric component, a second monomeric component, a third monomeric component and a crosslinking agent to form a reaction mixture,

wherein the first monomeric component comprises an aryl acrylate or an aryl methacrylate;

the second monomeric component comprises a monomer having an aromatic ring with a substituent having at least one site of ethylenic unsaturation, the second monomeric component being other than an acrylate; and

the third monomeric component comprises a high water content hydrogel-forming monomer; and

b) subjecting the reaction mixture to polymerization conditions to form the copolymer.